

**Request to Archive
With The National Centers for Environmental Information
For Historical Land-Cover Change and Land-Use Conversions Global Dataset
Provided by Univ of Illinois**

2012-09-29

This information will be used by NCEI to conduct an appraisal and make a decision on the request.

1. Who is the primary point of contact for this request?

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2. Name the organization or group responsible for creating the dataset.

University of Illinois at Urbana Champaign

3. Provide an overview summarizing the scope of data you want to archive. Describe the outputs, data variables, including their measurement resolution and coverage.

A set of three estimates of land-cover types and annual transformations of land use are provided on a global 0.5°x0.5° grid at annual timesteps. The longest of the three estimates spans 1770-2010. The three estimates use three different data sets of cropland and pastureland. Common input data sets are of wood harvest and urban land. The three estimates use a consistent methodology, and start and end with common land-cover maps, taking different courses from the starting map to the finish map. The land-cover maps are reported as the percentage of grid cell area containing each of 28 land cover types. The land-use conversion maps are reported as the percentage of the grid cell area transformed for each of 92 possible land-use conversions. The resulting land-cover maps are intended to be useful for studies involving interactions between land-cover and climate, biophysics, biogeochemistry, and the global water and carbon cycles.

Key Aspects:

Years of Record: 1770-2010
Spatial Resolution: 0.5 x 0.5 degree
Vertical Levels: Surface Data Set
Domain: Global and Land only
Spatially Complete
Annual Timesteps
Format of Data: NetCDF

4. What is the time period covered by the dataset? (YYYY-MM-DD, YYYY-MM or YYYY)

From 1770-01-01 to 2010-12-31

5. Edition or version number(s) of the dataset:

Version 1

6. Describe the level to which the data are processed. For example, are these unprocessed raw observations, derived parameters, quality controlled or inter-calibrated data, etc.?

These are reconstructed data sets calibrated using high resolution satellite land cover products. Historical inventory data sources from national and sub-national levels were used to reconstruct these data sets. The estimates are extensively validated with other published studies.

7. Approximate date when the dataset was or will be released to the public:

2012-07-01

8. Who are the expected users of the archived data? How will the archived data be used?

As the land cover data sets are an integral part of land-surface/climate models, target users range from researchers interested in understanding the impacts of land-use change on biogeophysics/biogeochemistry/hydrology to the general climate modeling community.

9. Has the dataset undergone user evaluation and/or an independent review process? Did NCEI participate in design reviews?

The journal article describing this data set is Meiyappan and Jain (2012), Three distinct estimates of historical land-cover change and land-use conversions for over 200 years, *Frontiers of Earth Science*, 6(2), 122-139. Additionally, several new studies using these data sets are in the pipeline for publications. Moreover, results from this study are currently being included in the forthcoming IPCC Assessment Report.

10. Describe the dataset's relationship to other archived datasets, such as earlier versions or related source data. If this is a new version, how does it improve upon the previous version(s)?

11. List the input datasets and ancillary information used to produce the data.

The data sets use a suite of other historical land-use data sets very widely used in the climate modeling community along with several high resolution MODIS satellite land cover product (Friedl et al. 2010). The inventory data sets were based on the following studies: Ramankutty and Foley, 1999; Klein Goldewijk et al. 2011; Houghton 2008; Hurtt et al. (2011) and Klein Goldewijk et al. (2010).

12. List web pages and other links that provide information on the data.

Each data netcdf file contains detailed description of each variable and the associated units. In addition, general information on the data files has also been provided. These data sets are accompanied with a README file which summarizes the data formats and characteristics of the data set.

13. List the kinds of documents, metadata and code that are available for archiving. For example, data format specifications, user guides, algorithm documentation, metadata compliant with a standard such as ISO 19115, source code, platform/instrument metadata, data/process flow diagrams, etc.

1. We have provided detailed information of each variable in the netcdf file. In addition, a README file and the accompanying research paper fully describes the scope, format and usage of these data sets. The data can be accessed from: <http://www.atmos.illinois.edu/~meiyapp2/datasets.htm>

14. Indicate the data file format(s).

1. netCDF-4

15. Are the data files compressed?

gzip

16. Provide details on how the files are named and how they are organized (e.g., file_name_pattern_YYYYMM.tar in monthly aggregations).

File organized based on historical year numbers.

17. Explain how to access sample data files and/or a file listing for previewing. If it is not available now, when will it be available?

The whole set of data can be accessed from: <http://www.atmos.illinois.edu/~meiyapp2/datasets.htm>

18. What is the total data volume to be submitted?

Historic Data: all historic data or data submitted as a completed collection.

Total Data Volume: 1GB

Number of Data Files: 6

19. Are later updates, revisions or replacement files anticipated? If so, explain the conditions for submitting these additional data to the archive.

No additional updates, revisions or replacement data are anticipated.

20. Describe the server that will connect to the ingest server at NCEI for submitting the data.

Physical Location: Urbana, IL.

System Name: climate.atmos.uiuc.edu

System Owner: University of Illinois

Additional Information: Data download link:
<http://www.atmos.illinois.edu/~meiyapp2/datasets.htm>

21. What are the possible methods for submitting the data to NCEI? Select all that apply.

1. FTP PULL

<http://www.atmos.illinois.edu/~meiyapp2/datasets.htm>

22. Identify how you would like NCEI to distribute the data. Web access support depends on the resources available for the dataset.

1. Direct download links

23. Will there be any distribution, usage, or other restrictions that apply to the data in the archive?

No known constraints apply to the data.

24. Discuss the rationale for archiving the dataset and the anticipated benefits. Mention any risks associated with not archiving the dataset at NCEI.

I believe this reconstructed data set is a good addition to the existing estimates in literature, and provides new avenues for climate models to study the range of uncertainties resulting from historical land-cover change. These data sets being unique by providing a complete reconstruction of the past, in terms of details in land-cover types and methodology, are also relatively easier to implement in other models. We believe these data sets would be used widely in the research community to study various aspects of climate change. Hence, archiving and distributing these data sets through a widely recognized service such as NCDC is a way forward to make these data sets easily available to researchers.

25. Are the data archived at another facility or are there plans to do so? Please explain.

No

26. Is there an existing agreement or requirement driving this request to archive? Have you already contacted someone at NCEI?

No

27. Do you have a data management plan for your data?

No

28. Have funds been allocated to archive the data at NCEI?

No

29. Identify the affiliated research project, its sponsor, and any project/grant ID as applicable.

NASA Land Cover and Land Use Change Program (No. NNX08AK75G)

30. Is there a desired deadline for NCEI to archive and provide access to the data?

Archive by: 2012-10-10

Accessible by:

31. Add any other pertinent information for this request.

None